

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Original) A punch and wind machine for producing a slotted wound core, said machine including a punch arrangement arranged to punch apertures in a length of material, a mandrel for receiving the punched material, a control means and a mandrel indexing means, wherein the positioning of said punch arrangement and said mandrel is fixed and said mandrel is arranged to be rotated by the mandrel indexing means after each operation of the punch arrangement so that a roll of punched material is formed on the mandrel, said mandrel being rotated by an amount determined by the control means, and said control means determining the indexed amount so that selected apertures punched in the length of material align with one another when the material is rolled onto the mandrel whereby the aligned apertures form respective slots of a desired configuration in the core.

2. (Original) A punch and wind machine according to claim 1 wherein the desired configuration of the slot is straight sided and radially extending.

3. (Previously Presented) A punch and wind machine according to claim 1 wherein the mandrel indexing means rotates the mandrel by varying amounts.

4. (Previously Presented) A punch and wind machine according to claim 1 wherein the slots produced in the core are radial to the roll of material and have side walls which are substantially straight.

5. (Previously Presented) A punch and wind machine according to claim 1 further including roll measuring means for measuring a dimension of the roll of punched material on the mandrel.

6. (Original) A punch and wind machine according to claim 5 wherein the measured dimension is provided as an input to the control means.

7. (Previously Presented) A punch and wind machine according to claim 5 wherein the measured dimension of the roll of punched material is the radius of the roll of punched material on the mandrel.

8. (Previously Presented) A punch and wind machine according to claim 5 wherein the roll measuring means includes a linear differential transformer (LVDT).

9. (Previously Presented) A punch and wind machine according to claim 5 wherein the control means is arranged to determine an index amount using an algorithm and the measured dimension of the roll of punched material on the mandrel.

10. (Previously Presented) A punch and wind machine according to claim 5 further including a first roll means arranged to maintain a desired tension on the length of material during operation of the punch and wind machine.

11. (Original) A punch and wind machine according to claim 10 wherein the first roll means enables accurate pre-feed of a first portion of the length of material during a pre-feed operation of the punch and wind machine.

12. (Previously Presented) A punch and wind machine according to claim 10 wherein the first roll means is driven by a servo control.

13. (Currently Amended) A punch and wind machine according to claim 10 further including a second roll means interposed between said punch arrangement and a tangent point at which the material is rolled onto said mandrel, the second roll means arranged to direct the punched material onto the mandrel.

14. (Original) A punch and wind machine according to claim 13 wherein the second roll means serves to maintain the un-punched material perpendicular to the punch

arrangement.

15. (Original) A punch and wind machine according to claim 14 wherein the second roll means includes a pair of free running rollers.

16. (Original) A punch and wind machine according to claim 14 wherein the second roll means includes a single running roller and wherein the angle presented by the material as it leaves the roller never crosses the horizontal plane when winding a complete roll.

17. (Previously Presented) A punch and wind machine according to claim 14 wherein the mandrel includes a temporary fixing means arranged to attach a leading end of the material to the mandrel after the pre-feed.

18. (Original) A punch and wind machine according to claim 17 wherein the fixing means includes a radial slot cut into the mandrel which is arranged to receive the leading end of the material.

19 - 22. (Canceled)

23. (Original) A punch and wind machine according to claim 7 wherein the control means includes a digital computing element arranged to read the value of the radius of the roll of punched material on the mandrel.

24. (Original) A punch and wind machine according to claim 23 wherein the digital computing element is further arranged to calculate the change in mandrel angle that must be made in order to punch apertures in the material so as to ensure that selected apertures in the length of material align with one another when rolled onto the mandrel so as to thereby forming respective slots in the core.

25. (Previously Presented) A punch and wind machine according to claim 1 wherein the control means is arranged to determine the radius of the roll of material on the mandrel, initiate the mandrel indexing means to rotate the mandrel by a calculated index angle

so as to draw more material around the roll of material formed on the mandrel, actuate the punch arrangement so as to cause an aperture to be punched in the length of material and then repeat this process until the desired radius of material is located on the mandrel.

26. (Previously Presented) A method of forming a slotted wound core having adjacent radial slots separated by an angle α , said method including the steps of:

- (a) Feeding a length of material through a punch arrangement and attaching an end of the material to a mandrel;
- (b) Calculating a length BC of the material between a first point B and a second point C, where point B is the point of intercept between a punch center of the punch arrangement and the material and the second point C is the point of contact between material wound on the mandrel and a roll radius measuring means;
- (c) Determining a next aperture punch point position A on the material, said position A being determined by the steps of:
 - I. Determining the angle θ about a center point of the mandrel between a radial extending to point C and a radial forming a center line of a slot which the aperture at point A will extend when laid against a circumference of the roll of material on the mandrel;
 - II. Determining a length AC of material between a first point A and the second point C, where AC is determined by the equation:

$$AC = \theta \left(\frac{\theta \times t}{4\pi} + r \right)$$

Where r is the radius of the roll measured at C by the roll radius measuring means and t is the thickness of the material to be punched;

III. Calculating a length of material AB between the first point A and a third point B, where AB is determined by the equation:

$$AB = AC - BC$$

- (d) Calculating a mandrel rotation index angle γ required to achieve a feed length AB;
- (e) Rotating the mandrel by index angle γ ;
- (f) Punching an aperture in the material using the punch arrangement; and
- (g) Repeating steps (b) to (f) until a desired core radius is achieved.

27. (Original) A method of forming a slotted wound core according to claim 26 wherein the mandrel rotation index angle γ is calculated using the equation:

$$\gamma = \frac{-r + \sqrt{r^2 + \frac{t \times AB}{\pi}}}{\frac{t}{2\pi}}$$

28. (Previously Presented) A method according to claim 27 further including an initial pre-feed operation during which the material is fed until it contacts the mandrel and is then fed into a mandrel fixing means.

29. (Previously Presented) A method according to claim 26 wherein after one complete rotation of the mandrel, a permanent fixing means is applied to attach a first layer of material on the mandrel to a second layer so as to thereby prevent an inside diameter of the roll of material from unwinding when it is removed from the mandrel.

30. (Previously Presented) A method according to claim 26 wherein when a desired outside diameter of the roll of material on the mandrel is achieved, a cutting means cuts the material at a desired point and an attaching means permanently affixes the cut end of the material to the roll so as to prevent the roll unwinding.

31. (Previously Presented) A method according claim 26 further including the step of automatically ejecting the completed roll.

32. (Previously Presented) A method according to claim 26 further including the step of cutting off a first unpunched portion of the length of material on the roll so that the slots formed by the apertures in the material extend from the circumference of the roll to the center.

33. (Previously Presented) A method according to claim 26 further including the step fixing the ends of the roll to prevent inadvertent unwinding of the roll.

34. (Previously Presented) A method according to claim 26 wherein between step (a) and step (b), the initial feeding process is driven and halted using the first roll means rather than by indexing the mandrel and apertures are punched in the material at appropriate locations, resuming the feed process thereafter until the material reaches the location of a mandrel fixing means.

35-36. (Withdrawn)